

3D MOLD DELIVERS QUICKER, COOLER PRODUCTION

ABOUT KREG TOOL CO. Kreg Tool Company manufactures tools for use in the wood working industry. From Kreg Jigs® to fully-automatic machines, Kreg offers simple solutions that have changed the way thousands of woodworkers join wood. The company produces a number of innovative tools for clamping, joining, routing, cutting, and measuring. An ESOP (Employee Stock Ownership Plan) company, Kreg is based in Huxley, Iowa, and has over one hundred employees.

THE CHALLENGE. Kreg was looking for an innovative solution to speed up its injection mold production process. The traditional production method of drilling a straight-line hole did not allow for water to cool all parts of an injection mold equally. Parts of the product were getting and staying much hotter than the rest, creating the potential for warping. Kreg had been safeguarding against this problem by keeping new jigs in the molds slightly longer, then moving them to special cooling fixtures to hold them in place until cooling was complete. Hoping to remove this additional step to create a faster production process, Kreg reached out to the Iowa Center for Industrial Research and Service (CIRAS), part of the MEP National Network™.

MEP CENTER'S ROLE. CIRAS engineers worked with the Kreg team to design a mold insert solution using 3D metal printing. The 3D printer improved Kreg's production process by creating new, curved channels in the mold for water to more evenly cool the hot plastic. CIRAS used its metal additive manufacturing machine to produce the mold insert, and Kreg began manufacturing some of its K5 jigs using the mold. The 3D-printed tool, which went through various iterations over the course of a year, now allows the company to keep better control of temperatures during the production process and eliminate several heat-related steps.

"Now that's one less operation in the plant that we have to staff," said Brian Hill, Senior Industrial Engineer. "We can reallocate that labor to some other project." Kreg is making products at a faster rate and finding new positions for workers who were once required to handle the jigs as they cooled. The company is benefitting from increased throughput and lower production costs.

"An injection molder basically is a money-printing machine. We put plastic pellets in, and every time that mold opens, it's something we can turn into cash. So the faster we can make the part fall out, the more money we can make. Anything that can improve our productivity is something that can improve our cash flow."

-Brian Hill, Senior Industrial Engineer

RESULTS



\$20,000 annual savings in production costs



Increased throughput

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